BioNanoScience (2018) 8:467–472
https://doi.org/10.1007/s12668-017-0495-y

Whether Medical Schools in Russia Are Ready to Develop Successfully in the Twenty-first Century

Andrey Kiassov[1] · Anisa Gumerova[1] · Sayar Abdulkhakov[1] · Rashat Faizullin[1] · Marat Mrasov[1] · Lenar Rashitov[1] · Raushania Gaifullina[1] · Rezeda Khasanova[1] · Julia Oslopova[1] · Albert Rizvanov[1]

Published online: 6 January 2018

Abstract
The main purpose of this work was to analyze the situation of the readiness of Russian medical schools to develop and implement new technologies such as bionanotechnology and technologies born as the result of the genome and the fourth industrial revolutions, which are at the intersection of various sciences and can become a breakthrough in the development of future medicine. The development of medical schools in Russia, special features of Russian medical education, types of medical schools, and their effectiveness at the present time are considered in the paper. However, the most interesting development of new technologies is that of the "fundamental specialties" of training in higher education—medical biochemistry, medical biophysics, and medical cybernetics. We assert that Russian medical schools attached to large, traditional universities, thanks to multidisciplinarity and convergence in scientific research and in education, are the most prepared to solve the tasks posed by the global challenges of our time.

Keywords Medical education · Medical schools · Biomedical research · Translational medicine

1 Introduction

During a lecture at the Presidential Center named after B.N. Yeltsin in Yekaterinburg in June 2017, German Gref, the head of Sberbank of Russia, said: "Of course, medicine is the key trend today... the data in medicine will grow exponentially, and, actually, the use of data by medicine, big data is the key trend that we see today. We discussed today whether medical schools of the Ministry of Healthcare can survive. Obviously not." What are we talking about? All medical schools in Russia, or are there any other medical schools in Russia apart from the medical schools of the Ministry of Healthcare? Based on these issues, the main purpose of this work was to analyze the situation of the readiness of Russian medical schools to develop and implement new technologies such as bionanotechnology and technologies born as the result of the genome and the fourth industrial revolutions which are at the intersection of various sciences and can become a breakthrough in the development of future medicine. In fact, we must talk about the readiness of medical schools to translate and implement NBIC technologies (nanotechnology, biotechnology, information technology, and cognitive science) [1, 2] into health care through the education of a new generation of physicians.

2 A Short History of Medical Education in Russia—From the Old German Standard to Modern Reality

Unfortunately, in the English language scientific and periodical literature, information about medical education in Russia reflects a distorted and incomplete picture of reality. First, these are obsolete data that do not allow us to understand the current situation [3, 4], and second, publications have focused only on negative phenomena and problems [5, 6] or describing individual cases of interaction of individual medical schools in Russia with foreign partners, as a result of which one third of the Russian participants in the program leave Russia [7]. Therefore, we consider this gap to be filled.

✉ Andrey Kiassov
kiassov@mail.ru

[1] Institute of Fundamental Medicine and Biology, Kazan Federal University, 74 Karl Marks str., Kazan 420008, Russia